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## Feature Article

# Effectiveness of a community-based program for suicide prevention among elders with early-stage dementia: A controlled observational study

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## ABSTRACT

The purpose of this study was to develop a small-group-focused suicide prevention program for elders with early-stage dementia and to assess its effects. This was a quasi-experimental study with a control group pretest–posttest design. A total of 62 elders diagnosed with early-stage dementia who were receiving care services at nine daycare centers in J City Korea participated in this study. The experimental group participated in the suicide prevention program twice a week for 5 weeks with a pretest and two posttests. The developed suicide prevention program had a significant effect on the perceived health status, social support, depression, and suicidal ideation of elders with early-stage dementia. Nurses should integrate risk factors such as depression and protective factors such as health status and social support into a suicide prevention program. This community-based program in geriatric nursing practice can be effective in preventing suicide among elders with early-stage dementia.

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## Introduction

As a geriatric disease, dementia is increasing at a rapid rate commensurate with the increase in the elderly population. The prevalence rate of dementia in elders over 65 years has increased from 8.7% in 2008 to 9.6% in 2014, and it is estimated to reach 10.4% by 2020, according to a 2014 report compiled by the Korean Ministry of Health and Welfare.<sup>1</sup> A study conducted by the Korean National Health Insurance Service revealed that a large proportion (48.7%) of beneficiaries of long-term care insurance were elders with dementia, and the annual medical cost for dementia was 3.1 million won per person, much higher than that for cardiovascular disease (1.32 million won) or diabetes (.59 million won).<sup>2</sup> Moreover, the increase in the population of elderly patients with dementia is becoming a major issue not only for patients themselves but also for their families, local communities, and the nation.

Dementia is a progressive disease that causes cognitive impairment, anxiety, depression, changes in personality, and a range of behavioral and psychological symptoms, as well as

physical symptoms that decrease activities of daily living. This places a considerable burden on the patients and their family.<sup>3</sup> Consequently, family disputes and dramatic events such as the suicide of elders with dementia and subsequent suicide of family members have been reported through various media.<sup>4</sup> Nonetheless, no systematic approach to the diverse range of issues associated with dementia exists, despite the presence since July 2008 of a long-term care insurance system for elders that were intended to lessen the burden on families associated with the healthcare needs of elders with dementia.

Recent studies have increasingly identified early-stage dementia as a risk factor for suicide in the elderly population. Elders with early-stage cognitive impairment who are aware of their dementia have greater suicidal ideation than do non-impaired elders.<sup>5–7</sup> The level of depression among elders with early-stage dementia was three to four times greater<sup>5</sup> than that among elders of a similar age without dementia. Given that depression is highly correlated with suicide attempts,<sup>6,8</sup> adequate intervention programs for suicide prevention should be developed for individuals with early-stage dementia and protective factors should be improved.

Suicide prevention programs for elders with early-stage dementia must be based on an understanding of factors related to suicide so that the program can effectively address these factors. Previous research and intervention studies on elderly suicide<sup>8–13</sup>

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and on elders with dementia<sup>3,14</sup> have addressed these issues separately. Only a few previous studies have examined suicide-related factors<sup>5,10</sup> and characteristics<sup>6,7</sup> of elders with dementia. Furthermore, very little is known about interventions addressing suicide prevention among elders with early-stage dementia.

The increasing prevalence of dementia, and the suicide rate among elders with early-stage dementia, is now capturing the attention of the healthcare and medical fields, whose members agree on the need to identify the relevant factors and to take preventative action.<sup>6</sup> Previous studies have identified depression, limitations in the activities of daily living,<sup>5</sup> economic stress, functional decline,<sup>10</sup> and a lack of social support<sup>6,7</sup> as predictors of suicide among elders with early-stage dementia. Similarly, depression, poorly perceived health, low participation in social activities, and inadequate social support<sup>8,11,12</sup> have been identified as predictors of suicide among elderly populations.

In this study, an intervention program for suicide prevention in elders with early-stage dementia was developed that aimed to increase perceived health, activities of daily living, and social support, and to reduce depression, ultimately decreasing participants' suicidal ideation. It was anticipated that the suicide prevention program would foster a healthy lifestyle in elders by preventing suicidal behaviors in advance and by facilitating therapeutic relationships with other people. Therefore, the purpose of this study was to develop and evaluate the effects of a suicide prevention program for elders with early-stage dementia based on small-group activities.

We aimed to develop a suicide prevention program based on small-group activities for elders with early-stage dementia and to test the effects of this program on elders' suicidal ideation, perceived health, activities of daily living, social support, depression, examining the effects from a time lapse perspective. The study hypotheses follow.

Hypothesis 1: The experimental group will show a lower level of suicidal ideation compared with the control group.

Hypothesis 2: Participants who participate in the suicide prevention program (experimental group) will show a higher level of perceived health status compared with those who did not participate in the program (control group);

Hypothesis 3: The experimental group will show a higher level of activities of daily living compared with the control group;

Hypothesis 4: The experimental group will show a higher level of social support compared with the control group;

Hypothesis 5: The experimental group will show a lower level of depression compared with the control group;

## Methods

### Study design

This was an experimental study with a control group pretest–posttest design. It aimed to evaluate the effects of a suicide prevention program based on small-group activities on elders' perceived health, activities of daily living, social support, depression, and suicidal ideation, with the goal of reducing the degree of suicidal ideation among elders with early-stage dementia.

### Setting and samples

The study participants were elders who had been diagnosed with dementia by Korea's Long-term Care Insurance Service. They were under the care of daycare centers in J City, Korea. The authors visited all of the 18 daycare centers in the city to ask for voluntary participation, and permission from 9 center directors was obtained after the study goals had been explained. The volunteers were

contacted personally. The experimental and control groups were randomly determined using even and odd numbers. The nine daycare centers were numbered from 1 to 9 and then the group was split into an experimental group (2, 4, 6, and 8) and a control group (1, 3, 5, 7, and 9). Each center had six to nine participants who were all elders satisfied the inclusion criteria and consented to participate in the study. The program was provided on different days in each center (2, 4, 6 and 8). The study started with 66 participants (32 in the experimental group and 34 in the control group). One of the participants dropped out from the experimental group, and three were lost from the control group, for personal reasons, leaving 62 participants overall in the study (Fig. 1). The daycare centers with experimental and control groups had similar human resources, physical environments, and programming within the facility. Furthermore, experimental effects could be prevented, as the facilities were some distance away from each other.

Individuals with intellectual disabilities, a history of psychosis, or experience with similar suicide prevention programs were excluded during the selection process. The detailed selection criteria are listed below. With regard to cognitive function, among those classified with severe dementia, participants who scored in the 16- to 19-point range on the Korean Mini-Mental Status Exam (MMSE-KC), indicating early-stage dementia, including questionable dementia, were selected. Those with scores higher than 5 for suicidal ideation on the Suicidal Ideation Scale (SIS) were selected based on an earlier finding that the average score among elders with early-stage dementia was about 5 points.<sup>5</sup> In addition, participants with scores higher than 5 on the Korean version of the Geriatric Depression Scale Short Form (GDSSF-K) were selected, considering that the cutoff score for depression on the GDSSF-K is 5.<sup>15</sup> In sum, the inclusion criteria were as follows: (a) a score of 16–19 on the MMSE-KC among those classified with severe dementia by the Long-term Care Insurance Service; (b) a score > 5 on the SIS; (c) a score > 5 on the GDSSF-K; and (d) able to communicate.

G\*Power software (ver. 3.1.2) was used to determine the sample size, and 28 participants per group were calculated as the minimum sample size with the following settings: significance level of repeated-measures ANOVA, .05; power of test, .80; medium effect size, .25; number of repeated-measures, 3; and correlation between repeated-measure values, .50. Considering a dropout rate of 20%, 66 participants were selected in total, including 32 elders in the experimental group and 34 in the control group.

### Ethical considerations

Approval for this study was obtained from the Institutional Review Board of our university (2-1041024-AB-N-01-20141211-HR-126). The study purpose and procedure were explained during the selection process, and only participants who agreed to voluntary participation were enrolled. Those who were selected were informed that they could withdraw from the program at any time without penalty. Written informed consent was obtained from elders who agreed to participate. Furthermore, in recognition of any potential ethical issues that might arise, after completion of the study, members of the control group also received the same suicide prevention program that was provided to the experimental group.

### Measurements

#### Cognitive function

The Mini-Mental State Exam (MMSE) portion of the Korean version of the Consortium to Establish a Registry for Alzheimer's (CERAD) inventory (MMSE-KC) was used to measure cognitive function. MMSE-KC is a cognitive function index for the elders that is used to evaluate orientation to time (5 points), orientation to place (5

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